Bengaluru Electricity Supply Company Limited

BESCOM

(Government of Karnataka Undertaking)

POINT TO POINT TESTING REPORT

Project Name :

Engineers Present :			**Date and Time :**		
Turnkey contractor:			BESCOM Field (DAS) :		
Consultants:			BESCOM O&M :		
RMU Contractor :			BESCOM CDS (DAS) :		
RTU Contractor :					

Equipment Details (RMU)		Painting Status :	Please specify the direction of Normal Power Flow
Sl No. :			
Make :		Model :	
Position of Earth Switch in VLs(Cable end):	After Breaker / Before Breaker		
NOTE :"If Both Earth switch and VL indicates closed at the same time, then the P2P testing is failed"			
Location :			
Human Recognisable Name :			
MUSS+Feeder :			
Subdivision-O&M :			
Charged On:			
Lat :		Long :	
Site Code :			

OD-1 (HRN)	**OD-2 (HRN)**

VL-1 (HRN)	**VL-2 (HRN)**	**VL-3 (HRN)**

	Meter 1	**Meter 2**	**Relay 1**	**Relay 2**	**Relay 3**
Make :					
Model :					
Sl No :					
Version :					

Communication Details

RTU & Radio Details

RTU Make :		Master Radio Name:	
RTU Serial No :		Radio Serial Num:	
Firmware version :		DNP Serial Address:	
RTU Model:		DNP IP Address :	

Preliminary Checks

Sl No.	**Preliminary checks to be conducted**	**State**
1	RTU installed and powered up	OK / NOT OK
2	MARS Remote Radio Installed and powered up	OK / NOT OK

FPI Settings - OD2

	Current setting in Amps	**Time delay settings in milli seconds**
Over current		
Earth fault		

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Relay & its auxiliaries Details

Present Group-A Settings

	Curve Type	Relay Reset Mode (Auto/Manual)	I> - OC Relay setting in Amps	I> - TMS - Time Multiplier Setting (OC)	I> - EF Relay setting in Amps	I> - TMS - Time Multiplier Setting (EF)		Curve Type	I>> - High Set Current (OC)	I>> - Time Setting (OC)	I>> - High Set Current (EF)	I>> - Time Setting (EF)
VL-1								DEFT				
VL-2								DEFT				
VL-3								DEFT				

Present Group-B Settings

	Curve Type	Relay Reset Mode (Auto/Manual)	I> - OC Relay setting in Amps	I> - TMS - Time Multiplier Setting (OC)	I> - EF Relay setting in Amps	I> - TMS - Time Multiplier Setting (EF)		Curve Type	I>> - High Set Current (OC)	I>> - Time Setting (OC)	I>> - High Set Current (EF)	I>> - Time Setting (EF)
VL-1								DEFT				
VL-2								DEFT				
VL-3								DEFT				

CT Ratio	Meter -1	Meter-2

Time Synchronisation Test	Remarks
Connect the radio communication cable and RTU Serial ports. Verify that after next synchronisation message, RMUs RTU time and date are updated correctly	OK/NOT OK

Devices	Relay-1	Relay-2	Relay-3	Meter-1	Meter-2	Observations
Offline Check						

Digital Inputs and Outputs List

Digital Inputs (DI)	Remarks	Digital Inputs (DI)	Remarks
OD1 Closed	OK / NOT OK	VL1 Spring 1 Charged	OK / NOT OK
OD1 Open	OK / NOT OK	VL1 Earth Switch 1 closed	OK / NOT OK
OD1 Earth Switch1 Closed	OK / NOT OK	VL1 Earth Switch 1 Open	OK / NOT OK
OD1 Earth Switch1 Open	OK / NOT OK	VL1 Over Current Relay 1 Operated	OK / NOT OK
OD1 Local/Remote Status	OK / NOT OK	VL1 Earth Fault Relay 1 Operated	OK / NOT OK
OD1 Door Open	OK / NOT OK	VL1 Local/Remote Status	OK / NOT OK
OD2 Closed	OK / NOT OK	VL1 Door Open	OK / NOT OK
OD2 Open	OK / NOT OK	VL2 Closed	OK / NOT OK
OD2 Earth Switch 2 Closed	OK / NOT OK	VL2 Open	OK / NOT OK
OD2 Earth Switch 2 Open	OK / NOT OK	VL2 Spring Charged	OK / NOT OK
OD2 Local/Remote Status	OK / NOT OK	VL2 Earth-Switch Closed	OK / NOT OK
OD2 Door Open	OK / NOT OK	VL2 Earth-Switch Open	OK / NOT OK
FPI Overcurrent Operated	OK / NOT OK	VL2 Over Current Relay 2 Operated	OK / NOT OK
FPI Earth Fault Operated	OK / NOT OK	VL2 Earth Fault Relay 2 Operated	OK / NOT OK
SF6 Pressure Low	OK / NOT OK	VL2 Local/Remote Status	OK / NOT OK
Charger AC Fail	OK / NOT OK	VL2 Door open	OK / NOT OK
Voltage DC Low	OK / NOT OK	VL3 Closed	OK / NOT OK
Battery Fail Alarm	OK / NOT OK	VL3 Open	OK / NOT OK
Ctrl-Cabinet Open	OK / NOT OK	VL3 Spring 3 charged	OK / NOT OK
DLR Open/Close	OK / NOT OK	VL3 Earth-Switch 3 Closed	OK / NOT OK
RTU L/R Status	OK / NOT OK	VL3 Earth-Switch 3 Open	OK / NOT OK
RTU Door Open	OK / NOT OK	VL3 Over Current Relay 3 Operated	OK / NOT OK
Relay Grp A/B Activ	OK / NOT OK	VL3 Earth Fault Relay 3 Operated	OK / NOT OK
VL1 Closed	OK / NOT OK	VL3 Local/Remote Status	OK / NOT OK
VL1 Open	OK / NOT OK	VL3 Door open	OK / NOT OK

Control Output (DO)	Remarks	Control Output (DO)	Remarks
Dummy Latch Relay Open/Close	OK / NOT OK	VL1 Close	OK / NOT OK
OD1 Close	OK / NOT OK	VL1 Open	OK / NOT OK
OD1 Open	OK / NOT OK	VL2 Close	OK / NOT OK
OD2 Close	OK / NOT OK	VL2 Open	OK / NOT OK
OD2 Open	OK / NOT OK	VL3 Close	OK / NOT OK
FPI Reset	OK / NOT OK	VL3 Open	OK / NOT OK

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Communication and Interlock Tests (To be confirmed by the CS during the testing)

Communication Error Test	Remarks	Communication Error Test	Remarks
Disconnect RTU and Radio communications cable and check the communication failure indication	OK / NOT OK	Connect RTU and Radio communications cable and check the communication success indication	OK / NOT OK

Interlock Test		Remarks (Normally it should not operate)
With RTU Local/Remote switch in Local position, verify whether any operation is possible from CDS on the following device respectively.	OD-1	OK/NOT OK
	OD-2	OK/NOT OK
	VL-1	OK/NOT OK
	VL-2	OK/NOT OK
	VL-3	OK/NOT OK
With RMU Local/Remote switch in Local position, verify whether Close operation is possible from CDS on the following device respectively.	OD-1	OK/NOT OK
	OD-2	OK/NOT OK
	VL-1	OK/NOT OK
	VL-2	OK/NOT OK
	VL-3	OK/NOT OK
With Local/Remote switch in Remote position, and following device grounded by earth switch, verify whether operation on the respective device is possible from CDS.	OD-1	OK/NOT OK
	OD-2	OK/NOT OK
	VL-1	OK/NOT OK
	VL-2	OK/NOT OK
	VL-3	OK/NOT OK

Analog Inputs and Outputs Tests

Point List - AO		VL-1	VL-2	VL-3
Change of Relay Group from the CDS	Group A to Group B	OK / NOT OK	OK / NOT OK	OK / NOT OK
	Group B to Group A	OK / NOT OK	OK / NOT OK	OK / NOT OK

Analog Input (AI)	Meter-1		Meter-2	
	Values at Meter	Values at CDS	Values at Meter	Values at CDS
R-Y Line Voltage				
Y-B Line Voltage				
B-R Line Voltage				
R Phase Current				
Y Phase Current				
B Phase Current				
Total Active Power (kW)				
Total Reactive Power (kVAr)				
% THD Current				
Total Active Energy				
Total Reactive Energy				

Analog Input (AI)	Relay-1		Relay-2		Relay-3	
	Values at Relay	Values at CDS	Values at Relay	Values at CDS	Values at Relay	Values at CDS
R Phase Current						
Y Phase Current						
B Phase Current						
R Phase Fault Current						
Y Phase Fault Current						
B Phase Fault Current						
EFR Relay Fault Current						

Remote Setting of Deadband values and verification	OK / NOT OK

Dead band settings

Parameters	Meter 1	Meter 2	Relay 1	Relay 2	Relay 3
Current					
Voltage					
Active Power					
Reactive Power					

Reporting of Energy Values at Wireshark	: OK / NOT OK
Reporting of all the Points at Wireshark	: OK / NOT OK
Point to Point Testing Status :	**Completed / Observations to be attended**

POINT TO POINT TESTING REPORT

Responsibilities

1. BESCOM (DAS) : Will be responsible for witnessing the test and observations will be noted. The issues faced shall be submitted to individual team leads for rectification purposes. Shall ensure that the testing will be done in consent with BESCOM O&M.

2. BESCOM (O&M) : Will be responsible for providing the feeder and station names and the direction of power flow during normal condition and the human recognisable names. Line clear for operation of the breakers shall be provided by O&M if required.

3. RMU and/or RTU contractors will be responsible for resolving the issues faced during the point to point testing in the field.
4. BESCOM (P2P tester) Engineer will be responsible for conducting Point to Point testing at the CDS.

Observations :

Sl No.			Date	Observations	Status	Remarks	

BESCOM (DAS) **BESCOM (O&M)** **RMU/RTU Contractor**

BESCOM (DAS)
P2P Tester